

Application Number 10/731,867

Amendment dated June 27, 2006

Responsive to Office Action mailed February 27, 2006

AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0050] with the following amended paragraph:

[0050] As shown in FIG. 3, modular IMD 10 includes an overmold 48, which may be flexible. In the illustrated embodiment, overmold 48 at least partially encapsulates each of housings 36, 38 and 40. Further, as illustrated in FIG. 3, housings 36, 38 and 40 may be horizontally distributed at respective locations of overmold 48. Overmold 48 integrates modules 30, 32 and 34 into a desired form factor, but where flexible, allows relative intermodule motion. In some embodiments, a flexible overmold 48 incorporates mechanical features to restrict intermodule motion to certain directions or within certain ranges. A flexible overmold 48 may be made from silicone, and in some embodiments may be made from two or more materials of differing flexibility, such as silicone and a polyurethane. An exemplary polyurethane for this purpose is Tecothane®, which is commercially available from Hermedics Polymer Products, Wilmington, MA. Use of the term "overmold" herein is not intended to limit the invention to embodiments in which overmold 48 is a molded structure. Overmold 48 may be a molded structure, or may be a structure formed by any process.

Please replace paragraph [0061] with the following amended paragraph:

[0061] FIGS. 7A and 7B are top-view diagrams illustrating other example modular IMDs 90 and 100, respectively. More particularly, FIGS. 7A and 7B illustrate modular IMDs 90 and 100 that include alternative arrangements of modules 30, 32 and 34, flexible interconnect members 44 and 46, and lead connection modules 50. Further, FIGS. 7A and 7B illustrate alternatively shaped overmolds 92 and 102, respectively, that at least partially ~~encapsulates~~ encapsulate modules 30, 32 and 34 of modular IMDs 90 and 100. As illustrated in FIGS. 7A and 7B, each IMDs 90 and 100 include the housings of modules 30, 32 and 34 horizontally distributed at respective locations of overmolds 92 and 102.

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Please replace paragraph [0069] with the following amended paragraph:

[0069] FIGS. 10A and 10B are cross-sectional diagrams illustrating two example configurations of overmold 102 of modular IMD 100, the cross-section taken along axis 94 (FIG. 7B). FIG. 10A illustrates an embodiment of IMD 100 in which overmold 102 fully encapsulates modules 30, 32 and 34, while FIG. 10B illustrates an embodiment of IMD 100 in which overmold 102 partially encapsulates modules 30, 32 and 34. In embodiments where overmold 102 partially encapsulates modules 30, 32 and 34, overmold 102 leaves portions 130, 132 and 134 of modules 30, 32 and 34 exposed, respectively. Portions 130, 132 and 134 may, as illustrated in FIG. 10B, be lower portions of modules 30, 32 and 34, e.g., portions of the modules that are proximate to cranium 12 when modular IMD 100 is implanted thereon. Embodiments in which overmold 102 fully encapsulates modules 30, 32 and 34 may be preferred as providing greater patient comfort and protection of the modules. However, in some embodiments in which portions 130, 132 and 134 are exposed, troughs may be drilled into the surface of cranium 12 that are sized to receive the portions. By recessing portions 130, 132 and 134 into such troughs, the height of modular IMD 100 above cranium 12 may be reduced. As illustrated in FIGS. 10A and 10B, the housings of modules 30, 32 and 34 may be horizontally distributed at respective locations of overmold 102, and overmold 102 may separately encapsulate, either partially or completely, each of the housings.